

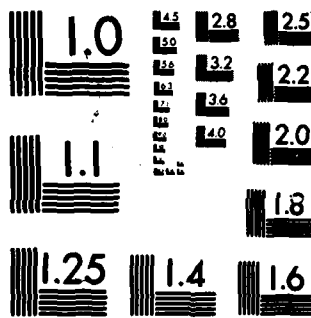
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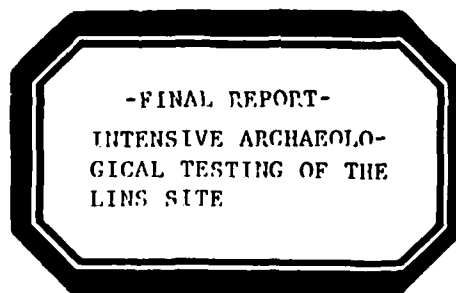
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FINAL REPORT

Intensive Archaeological Testing, Data Recovery, Analysis
And Interpretation of a Portion of the Lins Site (21-RO-7),
Roseau River, Minnesota.

Project Director: Alan P. Brew, Associate Professor of Anthropology
Institution: Bemidji State University

Report Authors: Alan P. Brew and William J. Yourd

Appendix by Orrin C. Shane, III

Contracting Agency: U.S. Army Corps of Engineers, St. Paul District

Contract Number: DACW37-76-C-0180

Date: April 1, 1977

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Introduction

This document constitutes the final report of the project defined in Contract No. DACW37-76-C-0180 between the U. S. Army Corps of Engineers, St. Paul District and Bemidji State University as "intensive archaeological testing, data recovery, analysis and interpretation of a portion of the Lins Site (21-RO-7), Roseau River, Minnesota." With acceptance of this report, the contractual obligations (Phase I) of Bemidji State University are met. As indicated in an earlier report, Phase II of the contract will not be implemented.

The Site

The Lins Site (21-RO-7) was recorded in the University of Minnesota Site File in 1959 as a probable Archaic Period habitation located on the George Lins farm along the Roseau River in Roseau County, Minnesota. Subsequent field investigations, focusing upon the large number of artifacts which Mr. Lins had collected from the surface of his fields and upon widely distributed test excavations, produced divergent cultural and spatial definitions of the site.

In 1973, a University of North Dakota field team visited the site and defined it as an Archaic kill and butchering station consisting of a dense concentration of lithic artifacts and animal bones confined to a relatively restricted area ("approximately 100 meters square") on the north side of the river (Good 1974: 68-70). Field investigations in 1974 and 1975 by the University of Minnesota indicated that although the site was more extensive,

occupying both sides of the river for a distance of 1220 to 1520 m. (4000 to 5000 ft.), dense concentrations of cultural remains were not apparent.

The latter study (Johnson 1975:6-12) confirmed the Archaic designation of the site and indicated the likelihood of an additional component of Middle Woodland age on the south side of the river. Johnson concluded that the site had great potential significance in the interpretation of the prehistory of northern Minnesota and that it was worthy of nomination to the National Register of Historic Places.

Based upon the above investigations, the Lins Site (Fig. 1) is defined spatially as a long (1200 to 1500 m.), narrow (200-400 m.) area lying parallel to, and on both sides of, the Roseau River, extending through the center of the SE $\frac{1}{4}$ and into the center of the E $\frac{1}{2}$ of the SW $\frac{1}{4}$ of Sec. 25, T.163 N., R.42 W., Roseau County, Minnesota (U.S.G.S. 7.5 Minute Series Badger NE, Minnesota, Quadrangle). Given the scattered nature of the archaeological remains, computation of a site area from these figures would not reflect a cultural reality.

The Lins Site is defined culturally as predominantly Archaic with a minor Middle Woodland component. The former component, characterized by bison hunting, is concentrated on the north side of the river while the latter is restricted to the south side and is probably associated with much later foot traffic and possible ephemeral campsites" (Johnson 1975:9).

Comparative Materials

Neither the geographical region nor the cultural time period of the Lins Site can be characterized as "well known." Few archaeological sites are recorded in Roseau County (Fig. 2) or in the general area of northwestern Minnesota and few of these have been the subject of more than limited test excavations. The closest excavated sites of Archaic cultural affiliation lie approximately 145 km. (90 miles) to the north in Manitoba.

The Region

In addition to the Lins Site, a total of nine sites are located on the Roseau River in Roseau and Kittson counties. Only one of these sites is of apparent Archaic age, although two other Archaic sites are located north of the river. The Archaic site (21-RO-2), which lies 28 km. (17.3 miles) to the southeast, is significant because, as described by Peterson (1973:48), its projectile points are markedly similar to those from the surface of the Lins Site. Of the nine surveyed sites, four were examined recently by the University of North Dakota (Good 1974) and/or the University of Minnesota (Johnson 1975).

The only site to receive intensive investigation was the Roseau River Village (21-RO-4), a Late Woodland and historic Ojibwa site, where Lloyd Wilford conducted test excavations in 1948 (Wilford 1953). In historic times, a trail along the Roseau River connected this site to Dominion, Manitoba (Johnson 1975:5). The use of this trail in earlier times could account for the presence of the limited post-Archaic materials at the Lins Site.

The Greenbush Borrow Pit Site (21-RO-11), which lies on the Campbell Beach of Glacial Lake Agassiz 37 km. (23 miles) southwest of the Lins Site has been excavated thoroughly. This flint-knapping site, with an estimated age of 5000 to 1000 B.C., has yielded projectile points which bear greater similarities to Plano than to Archaic types (Peterson 1973).

Elsewhere in the region, the Lake Bronson Mounds, 21-KT-1 (Johnson 1973) and the Karlstad Ossuary, 21-MA-10 (Scott and Loendorf 1976) have produced evidence of mortuary activities which are of Arvilla (A.D. 600 to 900) and Late Woodland age, respectively. Recent excavations failed to produce evidence of a pre-Woodland component at the former site (Michlovic 1976).

The Time Periods

Excavated sites of a general Archaic time period, all of which are some distance from the Lins Site, indicate that the latter's cultural affiliations lie to the north and west (Good 1974:83-84). The Lockport (EaLf-1) and Larter (EaLg-1) sites, located on the Red River in Manitoba about 158 and 145 km. (98 and 90 miles), respectively, from the Lins Site, are the type sites of the Larter Focus, with an estimated age of 500 to 1500 B.C. This focus (MacNeish 1958:57-59) is characterized by large corner- and side-notched points and a bison-hunting economy, both of which conform to the surface evidence at Lins.

Two excavated Archaic sites in Minnesota, the Itasca Bison Kill Site (21-CE-1) and Petaga Point (21-ML-11), which lie about 200 and 355 km. (125 and 220 miles), respectively, to the south-southeast do not conform so readily to the Lins Site material.

Although the Itasca Site (Shay 1971) had a bison-hunting economy, its date of 5000 to 6000 B.C., the presence of fossil Bison occidentalis, and the crude nature of its notched points suggest that it is earlier than Lins. At Petaga Point (Bleed 1969), despite some similarities in lithic materials, both the woodlands economy and the Old Copper technology stand in marked contrast to the Lins Site.

The very small sample of Middle Woodland material from the Lins Site does not permit in-depth comparison. The most apparent ties are to the Laurel Culture sites which lie to the east along the Rainy River in Koochiching County. Of particular note are the McKinstry (21-KC-2) and Smith (21-KC-3) sites, both of which contain burial mounds. The excellent analytical treatment of Laurel ceramics by Stoltman (1973) provides data to which the few sherds from the surface of the Lins Site can be compared.

The Natural Setting

The salient element in the topography of both the Lins Site and the general vicinity is the bed of former Glacial Lake Agassiz. This terminal Pleistocene feature (Peterson 1973:6-10) has left a deposit of clays which is so level that the most striking relief on the topographic maps is provided by the state and county roads which lie on elevated, artificial surfaces.

Except to the north, where hilly terrain lies within 6.4 km. (4 miles) of the Lins Site, former strandlines constitute the most significant topographic eminences. The two-stage Campbell Beach of Lake Agassiz lies 13.4 km. (8.3 miles) south of the site and a minor beach ridge of "Roseau Lake" lies 7.2 km. (4.5 miles) to

the east. Both of these features were favored sites for prehistoric habitation and the former has served as an important transportation route throughout the historic occupation of the area.

At the Lins Site, the Roseau River has cut an east-west trending channel 2 to 3 m. (7 to 10 ft.) below the level of the surrounding fields. On both sides of the current channel, but more pronounced and regular on the south, are levees which were constructed during a river-dredging operation in 1916 (George Lins personal communication). Behind the levee on the south side lies ponded water. The former natural river bank is relatively steep, dropping approximately 2.0 m. (6.5 ft.) in 6.0 m. (20 ft.) linear distance. Beyond the river are fields which lie between the 1025 and 1030 ft. contours. Although these fields are essentially level, there is a gradual upward slope on the north side of the river.

The Roseau River has a long history of annual over-bank flooding which inundates the surrounding fields. This flooding may be responsible in part for the deposition of the black clay which covers the underlying gray Lake Agassiz clay to a depth of 30 to 40 cm. (12 to 16 in.). In cultivated portions of the site, the plow zone extends 15 to 20 cm. (6 to 8 in.) into the black clay. There is no clear distinction between the plow zone and the underlying undisturbed clay. The former is indicated merely by the inclusion of organic material, predominantly straw. The contact between the two clay deposits is a consistent element throughout the site and constitutes a significant archaeological feature.

Natural vegetation at the site varies with distance from and elevation above the river. In backwater areas behind the levees, vegetation consists primarily of high water-table plants, such as aspen, elder, elm, and ash. At higher elevations, burr oak and elm predominate. Wooded areas on the south side are quite dense and include thick understory vegetation, marked by some impressive stands of poison ivy and wild raspberries. In the excavated area on the north side, the vegetation approaches an oak parkland with a very pleasant grove of large oaks and sparse underbrush.

The site area has a long history of cultivation. Fields on the north side were cleared about 1900 and have been cultivated almost continuously thereafter. Wooded areas extend about 45 to 120 m. (150 to 400 ft.) back from the river. On the south side, fields on the extreme eastern end of the site were cleared shortly after the farm was homesteaded in 1886, but the majority of the site was not cultivated until the late 1930's. Clearing here has been closer to the river, with fields beginning about 15 to 90 m. (50 to 300 ft.) from the original river bank. The field adjacent to the excavation area on the north side has been planted in flax, wheat, and hay in the last three years. On the south side, hay was planted in 1975 and oats in 1976.

Scope of Work

Following the recommendations of the State Archaeologist (Johnson, 1975), Bemidji State University entered into contract with the U.S. Army Corps of Engineers to conduct intensive archaeological investigations of the Lins Site (21-RO-7). The field-work

portion of the scope of work contained two major elements, (1) the intensive testing of sections of the site, and (2) the gathering of information about local collections. These objectives were met as part of a University-sponsored archaeological field school conducted between June 8 and July 9, 1976, and directed by Alan P. Brew, Assistant Professor of Anthropology, with William J. Yourd as field assistant. A total of 1278 man-hours of labor, exclusive of supervisory personnel, was expended during the field-work phase of the project (see Appendix B for complete listing of project personnel).

Archaeological excavations were designed to meet a three-fold objective: (1) a concentrated testing program on the south side of the river in the proposed construction zone between Sta. 1290+00 and Sta. 1330+00; (2) testing elsewhere on the south side, to determine site limits; and (3) limited testing, time permitting, on the north side of the river. Because of the low cultural yield of the excavations south of the river, operations were shifted to the north side where the yield proved to be only slightly greater.

The surface collection acquired by George Lins during the last several decades was examined and photographed. This collection constitutes by far the majority of the cultural material from the site and the information provided by Mr. Lins is crucial for interpretation. Unfortunately, standing crops in the fields on both sides of the river made it impossible to augment the surface collection during the field-work portion of the project. Therefore, distributional data consist primarily of the memories of Mr. Lins supplemented by the rather limited observations made

by the University of North Dakota and University of Minnesota field teams.

Methodology

The placement of excavation units on the site was determined by a research design which intended to provide a sample of the entire area on the south side of the river and to permit effective utilization of data collected from the University of Minnesota's test squares (Johnson 1975). The latter objective was met quite successfully north of the river, providing a small but useful collection of faunal remains. In addition, several small test holes were placed in the woods south of the river. These tests, made with shovels and a post-hole digger, all were negative. All formal test squares were placed in open fields or in natural openings in the woods.

The excavation units were all 1 x 1 m. (3.28 x 3.28 ft.) squares. Since Johnson (1975:9) indicated that cultural material was concentrated at the contact between the two clay units, at an approximate depth of 20 to 30 cm. (8 to 12 in.), all units were excavated to a minimum depth of 50 cm. (1.6 ft.). Initially, the squares were excavated in 10 cm. (4 in.) levels and all fill was sifted through $\frac{1}{4}$ -inch mesh screens. After excavating the first three units, it became apparent that the clays would not pass readily through such a fine mesh and that the yield of cultural materials was too low to justify the use of such thin arbitrary levels. Therefore, all subsequent units were excavated in 20 cm. (8 in.) levels with sorting through $\frac{1}{2}$ -inch mesh screens.

Baselines for the excavation units were shot with a dumpy level on a tripod. All vertical measurements were taken with the level from arbitrary datum points of 100.00 m. A notebook sketch was made of the stratigraphy of at least one wall in each square and a measured profile was recorded for 25% of the units. A post-hole auger was used to extend the depth of a similar number of squares in order to examine the stratigraphy of the lower, Lake Agassiz clay. Both field and laboratory tests were made of soil pH and clay content. A Munsell Chart was used to determine moist soil colors in the profiles.

The site map (Fig. 1) was prepared from aerial photographs, with additional information obtained from the U.S.G.S. 7.5 Minute Series Badger, N.E., Minnesota, Quadrangle and the U.S. Army Corps of Engineers Real Estate Requirements Plan for Flood Control on the Roseau River. A complete photographic record, in both black and white and color, was maintained of the excavations in progress (Plates I-III), and photographs were taken of all profiled walls (Plate IV).

Excavations - South Side of River

Excavation units on the south side of the river were placed at 25 m. (82 ft.) intervals along an west-east trending baseline for a distance of 722 m. (2368 ft.). The baseline (Fig. 1) was placed so as to minimize disturbance of the planted field and to avoid the densely forested area along the river bank. The majority of the baseline was located between the temporary and permanent right-of-way limits of the proposed construction area, approximately from Sta. 1295 to Sta. 1318.5, and therefore permitted

sampling of that portion of the site which is likely to be damaged during the channeling project.

The south-side excavations were designed to coordinate with earlier tests conducted by the University of Minnesota. The baseline commenced about 130 m. (427 ft.) west of their Unit 13 and terminated about 126 m. (410 ft.) west of their Unit 15. A test square, Bemidji's Unit 12, was placed north of the baseline near their Unit 14.

The 31 squares on the south side of the river, Units 1 to 27 and 38 to 41, produced 21.0 m.³ (737.2 ft.³) of clayey fill. The total yield of material (Tables I-A and I-C) consisted of 114 pieces of mammalian bone, 5 unidentified bird bones, 53 bones representing two individual frogs (intrusive), one projectile point, one piece of chipping detritus, one prehistoric ceramic sherd, and 20 historic objects. Some of the bone may not be cultural, and 29 pieces of it were recovered from levels which contained historic material.

Excavations - North Side of River

Because of the extremely low yield of cultural materials in the south-side excavations, and because the University of Minnesota's work had indicated the possibility of cultural concentrations on the north bank, ten squares, Units 28 to 37, were excavated in the latter area. These units were excavated with the hope that sufficient material could be located in situ to permit more effective interpretation of the large collection of artifacts from the surface on that side of the river. The squares were placed in an oak parkland between the river and a cultivated

field at a distance of 79 to 95 m. (259 to 312 ft.) north of the center of the river channel. That field had yielded about 50% of the projectile points in Mr. Lins' collection.

The units (Fig. 1) were placed immediately adjacent to the University of Minnesota's Units 2 and 4. The latter unit was their most productive square, yielding 134 pieces of mammalian bone (Johnson 1975:Appendix A). Eight of the ten Bemidji State squares were located within 3 to 4 m. (9 to 13 ft.) of that square, yet they produced a total of only 36 bone pieces. The total yield of the ten squares, with an excavated volume of 5.7 m.³ (202.6 ft.³), was 87 bone specimens, one possible end-scraper, and one fragment of a prismatic blade (Tables I-B and I-C).

Archaeological Data - Excavations

The primary objective of the excavation program was to define the horizontal and vertical stratigraphy of the Lins Site through the use of a sampling procedure which would facilitate the location of areas in which concentrations of cultural remains occurred. Excavation of the latter would permit the reconstruction of prehistoric behavior at the site and would provide a sample of excavated materials which could aid in the interpretation of the large surface collection.

Stratigraphy

Excavations on the south side of the river failed to yield evidence of cultural concentrations of a size sufficient to warrant expansion of the units but they did provide enough data to permit definition of stratigraphic characteristics. These data confirmed the conclusions generated by the University of

Minnesota's tests that cultural remains were less dense than on the north side and that the productivity of excavation units would be low (Johnson 1975:9,12). Of the 31 squares excavated in 1976, 12 (38.7%) were sterile, as were 69 (67.6%) of the 102 levels. Only five squares (Units 40, 39, 38, 11, and 24) yielded 10 or more pieces of bone and all three prehistoric artifacts came from Units 39 and 41 at the western end of the baseline where abundant historic homestead refuse was found.

Based upon the excavated sample south of the river, the following possible concentrations of cultural debris, representing small-scale camping activities, can be defined: (1) from 300 to 375 m. E. (Units 41 to 38), possibly extending to 425 m. E. (Units 1 and 2); (2) from 650 to 725 m. E. (Units 11 and 13 to 15), including Unit 12 which was offset to the north of the baseline; and (3) at 950 m. E (Unit 24). These concentrations are separated widely, at intervals of 225 m. (738 ft.) in both cases.

The first concentration is both the densest and the most confused stratigraphically, since it includes three components, as follows: (1) a probable Archaic camp, represented by two artifacts and approximately 30 bones from lower levels; (2) a Middle Woodland camp, suggested by one excavated ceramic sherd and four more recovered from the surface; and (3) historic homestead debris, including 17 artifacts (Table I-C). Material from the latter two components was restricted to the surface and the plow zone.

The other two possible concentrations appear to be of Archaic age. The second concentration (Units 11 to 15) consists of 38 faunal specimens, including one modern Bison molar, most of which

occur at a depth of 30 to 50 cm. (12 to 20 in.), just above or in the lower clay horizon. The concentration in Unit 24 produced the most deeply buried specimens at that site. The 10 pieces of bone, five of which were burned, occurred in the lower clay at a depth of 40 to 90 cm. (16 to 35 in.). Since only three bones were recovered from equivalent depths elsewhere, the depth of the specimens from Unit 24 probably reflects downward migration resulting from natural forces.

Units on the north side of the river were somewhat more productive than those on the south: of the 10 units and 28 levels, only one (10.0%) and 11 (39.3%), respectively, were sterile. Nevertheless, only three squares (Units 29, 30, and 31) produced more than 10 pieces of bone, and only two prehistoric artifacts were recovered. As mentioned above, those squares placed immediately adjacent to the University of Minnesota's Unit 4, which had yielded 134 pieces of bone, produced only 36 bone specimens, as well as two artifacts. The density of materials from the north-side units, together with the earlier sample, is sufficient to justify defining that area as a campsite. The nature and depth of the specimens suggest an Archaic cultural designation.

In sum, the horizontal stratigraphy of the Lins Site, based on the excavated sample, includes four Archaic campsites, one Middle Woodland camp, and one historic homestead. The scattered nature of faunal specimens recovered from other units on the south side of the river indicates periodic use of the site surface during the Archaic period. This cultural activity was not sufficient in either density or duration to permit meaningful interpretation.

Given the presence of a light scatter of material and the distance between observed concentrations, delimitation of site area is neither possible nor culturally relevant.

The vertical stratigraphy of the Lins Site is dominated by two clay units, both of which are very consistent throughout the excavations in color, particle size, and topography (Fig. 3). Overlying the clay in uncultivated areas is a sod layer, which is 5 to 11 cm. (2 to 4.5 in.) thick, and the top 10 to 15 cm. (4 to 6 in.) of the upper clay has a slight humic admixture. In cultivated areas, the plow zone extends well into the upper clay but does not reach the lower. The contact between the two clays is clear (ca. 5 cm.) and smooth and appears to constitute a surface upon which much of the Archaic period cultural activity occurred.

In terms of particle size, the upper and lower clays are both true clays, with clay fractions of 70% and 62%, respectively (USDA 1974: soil-type triangle). The upper clay is black (7.5YR 2/0, 2.5Y 2/0) and the lower clay is dark to very dark gray (5Y 4/1-3/1), both taken from moist samples (Munsell Soil Color Charts 1975). Soil acidity decreases markedly with depth, from medium to slightly acid in the humic portion of the upper clay to moderately alkaline in the lower clay (Table II). The acidic erosion of bone surfaces reported by Shane (Appendix A) may reflect a period of higher acidity which occurred prior to burying and carbonate leaching.

The lower clay would appear to be a laustrine deposit attributable to a Campbell Beach phase of Glacial Lake Agassiz, with a terminal date of 7500 B.C. (Peterson 1973:8). The depositional history of the upper clay is unclear, but it could represent the

accumulation of ponded materials resulting from the flooding of the Roseau River. Stratigraphic evidence indicates that the Archaic occupation of the Lins Site occurred between the exposure of the surface of the lower clay and the approximate mid-point in the formation of the upper clay.

The stratigraphic evidence consists of (1) frequencies of bone occurrence in natural and arbitrary levels (Table III), and (2) direct observations of bones in situ. Most of the 206 pieces of mammal and bird bone recovered occurred in the uppermost portion of the lower clay (41.7%) or at or near the contact between the two clays (16.8%). In terms of arbitrary levels, the highest frequency (46.6%) was at 20 to 40 cm. (8 to 16 in.), the interval which includes the black clay-gray clay contact. In Unit 31, a concentration of 11 bones was found lying directly upon that contact (Plate V).

The Middle Woodland and historic period artifacts were recovered, with one exception, from the surface or the plow zone. The single exception was a very small piece of window-pane glass found in the black clay in Unit 27 (Table I-C). These distributional data indicate that both components date from a late period in the formation of the upper clay, but no stratigraphic basis for separating the two could be defined. The historic material is of late 19th century vintage.

In summary, the vertical stratigraphy of the Lins Site indicates that initial occupation began during the Archaic period after the exposure of that portion of the bed of Glacial Lake Agassiz. Archaic occupations occurred on that exposed surface and continued

during the deposition of the lower half of the black clay. After an occupational hiatus of unknown length, Middle Woodland period use of the site began. The final use of the site, as a historic homestead, occurred in the 1890's.

Artifacts

The number of excavated prehistoric artifacts from the Lins Site is too small to permit more than simple descriptive analysis. The 1976 work produced (1) a projectile point, (2) a basal fragment of a prismatic blade, (3) a flake that was used as both an end- and side-scraper, (4) a flake which may have been used as a scraping-cutting edge, and (5) one very small sherd (Table 1-C, Plate VI). The University of Minnesota excavated (6) one flake of brown chalcedony (Knife River "Flint") which shows use as a scraper, and (7) one piece of fire-cracked rock. Only items 1, 2, 3, and 6 are of probable Archaic context, and only the projectile point can be considered "diagnostic."

The projectile point (Plate VI) can be defined as corner notched or stemmed. It has a narrow, expanding stem and a straight base. There is some edge-grinding along the convex sides of the blade. In size and shape, the point resembles eight specimens from the surface of the Lins Site (Plate IX). The point was made from grandiorite gneiss, which could come from several sources to the north and east. MacNeish (1958:57) reports that Larter Focus occupants of the Red River Valley in Manitoba occasionally made chipped-stone tools from granites derived from the Precambrian Shield.

The Lins Site point is similar in form, but considerably shorter than, the large stemmed points (Class L) reported from Archaic

contexts at Petaga Point (Bleed 1969:Plate 12). Bleed (1969:32) states that his Class L points are longer than those from Durst Rock Shelter, Wisconsin, the type site of Durst stemmed points. Given the large sample of Archaic period projectile points from the surface of the Lins Site, the single excavated point can be assumed to be of similar age. Neither the morphology nor the archaeological context of the point would suggest a different interpretation.

The presence of a few finished artifacts or large flakes of Knife River Flint is typical of Archaic sites in the area. Peterson (1973:42), in reporting two tools of this material at the Greenbush Borrow Pit Site, discusses the prevailing theory that it was traded widely from a source in North Dakota but also indicates a possible source in Manitoba gravels. Shay (1971:52) reports six artifacts (8%), one preform, and eight flakes (0.4%) of Knife River Flint at the Itasca Bison Kill Site.

The single excavated ceramic sherd is not diagnostic but is assumed to be related to those recovered from the surface (see below). The historic artifacts recovered on the south side of the river will be discussed in a separate section below.

The major disappointment of the Lins Site's excavations was the failure to recover a useful sample of lithic materials to aid in the interpretation of the large surface collection. At best, the excavated sample served to indicate that there was a pre-ceramic, Archaic component at the site; that is, that the absence of ceramics from the surface collection was not the result of collectors' bias. The recovery of faunal remains, if not lithic

artifacts, from contexts in which no ceramics were found constitutes adequate support of that interpretation.

Faunal Remains

The faunal remains recovered from the Lins Site by both Bemidji State University and the University of Minnesota were analyzed by Dr. Orrin C. Shane, II, of Kent State University while he had access to study collections at Minnesota. The following discussion is designed to supplement his report which is included in its entirety below (Appendix A).

Of the 525 excavated pieces of bone, 81 (15.4%) were identified to the specific or generic level. Since the latter figure includes 53 frog bones, from two individuals, and several specimens from the sod and the plow zone, the number of identified bones for which human use can be inferred with reasonable certainty is only 21 (4%). The latter group consists of one specimen each of bald eagle and black bear, two of snowshoe hare (one individual) and 17 of Bison bison. The distribution of the bison bones suggests that at least three individuals are represented. One specimen each of whitetail deer and woodchuck were recovered from the plow zone and may reflect prehistoric human use.

As indicated above, most faunal specimens, including all the bison bones, occurred at or near the contact between the two clays in a context which indicates that they date from the Archaic occupation of the site. The bones from the top of the upper clay and the plow zone may be attributable to the Middle Woodland occupation. The only cultural-ecological statement which can be drawn from the stratigraphic relationships of the faunal remains is that the

taking of bison was restricted to the Archaic occupation.

Shane's interpretation of the Lins Site's faunal remains indicate that the site was the scene of small, transitory camps which were occupied, at least in part, during the summer months. Economic activities were restricted primarily to the hunting of mammals, with the bulk of the meat provided by bison. If, as it appears, the bison are of the extant species, the suggested paleontological significance of the site has not materialized (Johnson 1975:11).

Although the 15 bones, including 12 vertebrae from a single bison, recovered from the University of Minnesota's Unit 4, show no indications of butchering, four mammalian long-bone fragments from other units exhibit torsion fractures of a type which suggests that the bones were twisted to remove the marrow. The only evidence of cooking consists of five fragments of unidentified mammal bone from Unit 24 which were burned. One long-bone shaft fragment from a large mammal has edge wear which suggests it may have been used as a scraping tool.

While acknowledging the small size of the Lins Site's faunal sample, it is possible to make some comparisons to other sites. Although the high frequency of bison bones is comparable to that at the Itasca Bison Kill Site (Shay 1971:19, Table 5), the faunal remains are otherwise quite different in age and provenience. The Lins bison were modern but the Itasca specimens were Bison occidentalis. Furthermore, at Itasca the bones, from at least 16 individuals, were in a relatively confined area, indicative of a series of kills at the same locale, while at Lins the only cluster of bones

is from a single individual. Excavations immediately adjacent to that cluster failed to yield other identifiable bison bones.

At the Larter Site, the type site of the Larter Focus, on the Red River in Manitoba, MacNeish (1958:38) recovered 427 identifiable bones, of which 408 (95.6%) were modern bison. Since at least one-half of the projectile points recovered from the surface of the Lins Site are of types which are typical of the Larter Focus, the similarity of the faunal assemblages at the two sites is significant and can be used to argue that at Lins the projectile points and the excavated bones were contemporary.

Archaeological Data - Surface

The Collections - Historical and Distributional Data

The surface of the Lins Site has yielded considerable prehistoric cultural material, the vast majority of which was collected informally over a period of several decades by Mr. George Lins and his relatives. Their combined collections include approximately 125 projectile points and fragments, 11 large bifaces, and 17 fully-ground mauls. Formal collecting by field teams from the universities of North Dakota and Minnesota produced seven projectile points and fragments, three "hafted knives," 14 scrapers, one utilized flake, four cores, and eight pieces of lithic detritus. During the present project, four prehistoric sherds were recovered on the south side of the river.

Distributional data, based upon Mr. Lins' recollections, are somewhat impressionistic. All the artifacts in his collection were found "on the farm" and about one-half of the projectile points were found in plowed fields on the north side of the river (Fig. 1) in an

area approximately 240 by 100 m. (790 by 330 ft.). The formal field surveys confirmed the existence of this concentration. The North Dakota team recovered all its artifacts in that area (Good 1974:68, Fig. 23) but two test squares excavated there by the University of Minnesota produced only five bone fragments (Johnson 1975:Appendix A, "F-8").

Because crops were standing in the field, no surface or sub-surface investigations were conducted there in 1976. Given the importance of the concentration of artifacts to the interpretation of the site, Mr. Lins was interviewed about it in some detail. He reported two significant factors, as follows: (1) a low ridge, which trended roughly northeast-southwest and which has been removed by plowing, constituted the approximate center-line of the concentration; and (2) cultural material is recovered less frequently now than in the past. These factors suggest that the major occupation of the site centered upon an elevated surface which has been severely damaged or destroyed by cultivation.

Other distributional data are less precise, particularly for the grooved mauls, which were found by Mr. Lins' father, and for the projectile points of non-Archaic types. While most of this material appears to be of Woodland age, one projectile point fragment (Plate XI, k) may be a Plano type. Significantly, Mr. Lins has found only two lithic artifacts on the south side of the river. These two large bifaces (Plate XIII), one of which is corner-notched, are made from Knife River "Flint" and, on typological grounds, probably date from the late prehistoric use of the site.

Archaic Artifacts - Description

Because of the lack of specific provenience data for the surface specimens, detailed typological analysis was not attempted. The following descriptions and identifications are based upon examination of photographs of the Lins collection (Plates VII-XIII), and are restricted to the most common types therein. Comparative data are drawn from MacNeish's (1958) report on archaeological work in the Red River Valley, Manitoba, because it constitutes the most complete typological analysis in the general region. The two most common types in the Lins collection are morphologically and metrically similar to Parkdale Eared and Anderson Corner-notched points (MacNeish 1958:100-102, Plate VI).

Thirty specimens from the Lins collection, and four recovered at the site in 1973 (Good 1974:Fig. 24) are classified as Parkdale Eared (Plates VII and VIII). These points have medium length (3.2 cm.), relatively broad (2.3 cm.) blades with convex or straight sides. Wide side notches and a pronounced basal concavity create an eared effect at the corners. Lengths range from 2.4 to 5.0 cm., with most specimens falling between 2.7 and 3.3 cm.

MacNeish (1958:100) cites a length range of 25 to 40 mm. for his Parkdale Eared specimens. His points have narrower blades than those in the Lins collection but, although he lists narrow width as one of the diagnostic traits of the type, he illustrates one specimen (1958:Plate VI, no. 8) which has a broad blade and is very similar in shape to the Lins points. Caine (1974:Fig. 2, no. 7) illustrates a similar Parkdale Eared point from the Snake River region in eastern Minnesota. MacNeish reports that Parkdale Eared

points were found only in Larter Focus contexts.

Sixteen Lins specimens (Plate IX) are similar to Anderson Corner-Notched points in Manitoba (MacNeish 1958:101, Plate VI). The Lins points fall into two size categories: (1) a shorter group, averaging 3.5 cm. in length; and (2) a longer group with an average length of 5.6 cm. MacNeish cites a range of 30 to 68 mm. for his Anderson Points, with a mean of about 40 mm. The single excavated projectile point from the Lins Site is of this type, which is similar to the large stemmed points, Class L, at Petaga Point (Bleed 1969: Plate 12). MacNeish assigns these points to the Anderson, Nutimik and Larter foci.

The typology of the two major projectile point types at the Lins Site indicates a close relationship to, if not an identity with, the Larter Focus in Manitoba, as defined by MacNeish (1958: 57-59) on the basis of excavations at the Larter and Lockport sites. This interpretation is supported by the 10 large ovoid and triangular bifaces from the Lins Site (Plate XII). MacNeish (1958:117, 122) reports that ovoid were "very numerous" at the Larter Site and that triangular bifaces "occur only with the components of the Larter Focus."

Archaic Artifacts - Interpretation

The assignment of the Lins Site to the Larter Focus rests on the above evidence. Work in the immediate region supports the high frequency of Parkdale Eared Points but work elsewhere has questioned not only the typology of the points but also the chronology of the Larter Focus, which MacNeish (1958:57) defined as 2500 to 3500 years old.

Locally, Hlady (1970:275) cites a report by Elden Johnson and C. Thomas Shay which indicates that Parkdale Eared points are the dominant type at the Johnson Site (21-RO-2), which lies immediately outside the Lake Agassiz II maximum strand on the Roseau River about 28 km. (17.3 miles) southeast of the Lins Site (Fig 2). Johnson and Shay report that the "'complex appears to be associated with Bison occidentalis'" (Hlady 1970:275). They describe the Johnson site as "typical" and indicate that other sites of the Larter Focus occur along the margins of the Agassiz basin in Minnesota.

Shay's excellent report (1971) of the Itasca Bison Kill Site, which lies about 200 km. (125 miles) south-southeast of the Lins Site, demonstrates that triangular, side-notched points do occur in association with Bison occidentalis at a time depth, supported by a suite of C_{14} dates, of 7000 to 8000 years. The Itasca points have general similarities to Parkdale Eared specimens but the former are more irregular in blade form and base shape than the latter. Of the eight side-notched points, at least three have straight bases (Shay 1971:56, Fig. 27, Plate 24). The Itasca Site's dates constitute a terminus a quo for side-notched points in the region but they appear to be too early to apply directly to the Larter Focus.

To the north and west, eared points which are identical to the Parkdale type are classified as Oxbow and are common in Archaic or Meso-Indian collections from Saskatchewan and Alberta (Wormington and Forbis 1965:Pls. 6, 11, 23, 25, 27). Hlady (1970:275) reports the finding of "Oxbow projectile points which MacNeish calls Parkdale Eared" at the Whiterough Falls Site in Manitoba.

Placing Parkdale Eared and Oxbow in the same type has major implications for the chronology of the Larter Focus. The Oxbow Site, Saskatchewan, has produced a C_{14} date of 3250 ± 250 B.C. (Wormington and Forbis 1965:49) and Oxbow levels at the Long Creek Site, Saskatchewan, are dated at 2693 ± 150 and 2663 ± 150 B.C. (Syms 1970:125). At the Castor Creek Site, Alberta, the Oxbow occupation is placed at 2500-3000 B.C., with a C_{14} date of 2525 ± 1000 B.C. (Wormington and Forbis 1965:188). Wormington and Forbis (1965:188) assign the Oxbow Complex to the Altithermal climatic interval.

In an extensive review of the McKean Complex in Manitoba, Syms (1970) disputes the temporal priority of the Oxbow assemblage and concludes that the eared, side-notched projectile points (Oxbow, Parkdale Eared) are contemporary with McKean. Syms (1970:130-131) cites numerous C_{14} dates to demonstrate that his enlarged McKean Complex is earlier in Wyoming, with seven of twelve dates falling between 3010 and 2030 B.C., than in areas to the north and east. He concludes that the terminal date for McKean is "about 1000 B.C. or perhaps as late as 600 B.C. in the marginal Canadian plains" (1970:131).

The foregoing review of the chronology of the Larter Focus and of eared, side-notched projectile points indicates that the latter have a time-range of 3250 to 600 B.C. While Syms' statement that the dates in the eastern portion of the McKean Complex's distribution are later than those in the west may indicate support for MacNeish's original chronology for the Larter Focus at 2500 to 3500 years (550 to 1550 B.C.), the possibility that the Lins Site may be more than 3500 years old can not be ruled out.

Conversely, these C_{14} dates are too young to support the argument that the Larter Focus people exploited Bison occidentalis.

Non-Archaic Artifacts

The Lins collection includes about 20 projectile points (Plates X and XI) and 17 fully-grooved mauls, which may be of Woodland age. One projectile point (Plate XI, k) appears to be a Plano type. The absence of precise provenience data for these artifacts prevents meaningful interpretation of them. It is significant, however, that no ceramic artifacts have been found, either by Mr. Lins or the survey teams, on the north side of the river. The absence of pottery suggests that the lithic artifacts in the north-side concentration constitute a pure Archaic assemblage.

During the 1976 fieldwork, five ceramic sherds were found in the field on the south side of the river in an area between baseline stations 325 and 400 m. east (Fig. 1, Table I-C). All but one of these were surface finds and only one is diagnostic. The latter is a rim sherd of Laurel Oblique, subtype undragged stamp (Stoltman 1973:74-76). The other four sherds conform to the description of Middle Woodland, Laurel ceramics in that they all have smoothed exterior surfaces. Stoltman (1973:55-57) found that only 2.0% of 1582 sherds from Laurel contexts had roughened surfaces and concluded that such a low frequency could be used to support the argument that these sherds were intrusive. Conversely, Evans (1961: 34-35) found that Late Woodland, Blackduck body sherds had either cord-wrapped paddle (84%) or net or fabric (16%) impressions.

The extremely limited ceramic evidence from the Lins Site confirms the existence of a Middle Woodland component on the south

side of the river (Johnson 1975:9). The two lithic artifacts found there by George Lins may be related to that component or to a later one, but no diagnostic Late Woodland artifacts were recovered. The absence of Blackduck materials may reflect sampling error since only a small portion of the south side could be subjected to surface collecting. As noted by Johnson (1975:5-6), a historic Indian trail followed the river west from the Roseau River Village Site (21-RO-4) and Blackduck material from the Engstrom Site (21-KT-15), on the river west of the Lins Site, is related to prehistoric use of that trail.

Archaeological Data - Historic

Considerable data pertaining to the historic use of the Lins Site was acquired during the 1976 fieldwork. These data take the following three forms: (1) twenty excavated artifacts (Table I-C) recovered from the south side of the river; (2) architectural evidence observed on both sides of the river; and (3) information obtained from interviews of Mr. George Lins. All the evidence post-dates the settling of the original Lins homestead in 1886.

The excavated specimens consist both of household debris, such as fragments of tableware (whiteware and pressed glass) and stoneware, and of construction materials, such as window-pane glass, nails (both machine-cut square and wire), and unfired chinking mortar. All these specimens were recovered from the surface or from Level 1 in Units 39 and 40, except for two square nails and one window-pane fragment from Levels 1 and 2 in Unit 27. Considerable historic material was observed on the surface near the former units. The excavated specimens are of recent vintage, all

post-dating 1880.

Mr. Lins reported that a family named Dowhower built a house and barn in the vicinity of Units 38 to 41 "shortly after" the Lins family's homestead was established. The boulder foundation of that house was encountered immediately adjacent to Unit 41 on the last day of fieldwork in 1976. Brief inspection indicated that only the boulders remained and that they were arranged in a fashion similar to the barn foundation on the north side of the river.

The Dowhowers intended to move to the north side of the river and abandoned their original home about 1908. In anticipation of their move, they established a family cemetery and laid a barn foundation just north of the river (Fig. 1). Three infant children, namely two daughters and a granddaughter, were interred in the cemetery, which is marked today by several boulders. Mr. Lins stated that there had been a small wooden fence around the cemetery "many years ago" but no surface indications of it remained in 1976.

The barn foundation, which was clearly visible and lay 10 m. (33 ft.) south of the 1976 excavations, consists of 10 large boulders arranged in three parallel rows (Fig. 1). Most of the boulders are about 0.5 m. (1.65 ft.) long and the largest is 1.3 by 0.6 m. (4.3 by 2.0 ft.). Mr. Lins reported that the Dowhowers left the immediate vicinity and that the barn was not built.

The historic evidence from the Lins Site is of relatively little significance, in terms of this report, for the following reasons: (1) the material post-dates the original Lins homestead; (2) the homestead area on the south bank, with the exception of

the house foundation, has been disturbed seriously by plowing; and (3) the cemetery and barn foundation of the north side of the river lie outside the proposed construction area. The existence of the cemetery should be recorded because the interments are of relatively recent age (ca. 1890-1908) and members of the Dowhower family still reside in Roseau County.

Cultural Interpretations

Distributional Data - Cultural Concentrations

The foregoing surface and excavated archaeological evidence from the Lins Site indicates that the site area was the scene of numerous cultural activities which were both spatially and chronologically discontinuous. Excavations on the south side of the Roseau River defined three small cultural concentrations which represent five components. Three of these are designated Archaic camps, primarily on the basis of stratigraphic evidence, while elements of material culture served to define a Middle Woodland camp and a historic homestead. Surface architectural features on both sides of the river were assigned to the latter component.

Excavations on the north side of the river produced evidence of an Archaic component which included camping activities and the butchering of a single modern bison. The concentration of Archaic projectile points on the north-side surface constitutes the seventh, and largest component at the site. Its interpretation is hampered by the lack of controlled provenience data and by the absence of typologically similar excavated materials. Good (1974:63) has suggested that because of the large number of projectile points, the Lins Site may be a kill site but in the tent squares in the

area that produced the best evidence of butchering, including 15 bones from a single bison, no points were recovered.

Mr. Lins' description of the north-side concentration constitutes the best evidence available. The crucial factor therein is his assertion that a low ridge ran through the center of that area. Such a ridge would have been a preferred camping place and the large number of projectile points there would be expected. The presence of a ridge would solve another interpretative dilemma, namely the absence of projectile points on the surface elsewhere. Presumably, the ridge would not have received so deep a covering by the upper clay as the surrounding low areas and, therefore, plowing on the ridge could intersect the culture-bearing stratum. Conversely, even if the black clay had been deposited evenly, the combined effects of erosion and plowing of the ridge could have produced the same result.

This interpretation has negative implications for the existing archaeological value of the Lins Site. Since the ridge has been obliterated by plowing, the possibility of discovering undisturbed deposits of equivalent high artifactual density is remote at best. Further excavations will, more likely, reveal additional, widely scattered, low density deposits similar to those found on the south side of the river.

Culture History

The majority of the components at the Lins Site are of Archaic age. This assignment is based upon stratigraphic evidence, comparative analysis of projectile point typology, and the absence of ceramics in the area of the surface concentration on the north side

of the river. The presence of high frequencies of Parkdale Eared and Anderson Corner-notched points warrants assignment of the site to the Larter Focus, as defined by MacNeish (1958:57-59). Although MacNeish dates the focus at 2500 to 3500 years ago (550-1550 B.C.), the typological similarity between Parkdale Eared and the earlier Oxbow points (Hlady 1970:275) would suggest a possible time range of 3250 to 600 B.C. In the absence of more specific chronological evidence, the Lins Site is assigned to the latter interval.

The Middle Woodland component is defined on the basis of limited ceramic evidence. All five pottery sherds from the Lins Site conform to the general Laurel type descriptions and one sherd is a definite Laurel specimen. A series of five C_{14} dates from McKinstry Mound 1 (21-KC-2), a nearly pure Laurel Culture burial mound (Stoltman 1973:24), extends from 30 ± 45 B.C. to A.D. $\pm 560 \pm 55$ (Streiff 1972:33). Despite the small size of the ceramic sample, the Middle Woodland component at the Lins Site is assigned to this time range. There is insufficient evidence to designate the component Laurel Culture per se but it is noteworthy that Lukens (1973:42) raises the possibility that the bison represented by 27 bones at the McKinstry and Pike Bay (21-SL-1) sites were "transported from the west." If this were the case, then the Lins Site could represent a Laurel hunting camp.

Although no diagnostic Late Woodland artifacts were found at the Lins Site, the probability exists that some parts of it were used as campsites during that period. This assumption is predicated upon the existence of Blackduck sites on the Roseau River both to the east, 21-RO-4, and to the west, 21-KT-15, of Lins. As

Johnson (1975:5) has stated, a historic Indian trail linked these sites and extended into Manitoba.

The historic component at the Lins Site, other than that associated with the Lins family itself, can be dated securely between about 1890 and 1910. The homestead included a house and barn on the south side of the river and a cemetery and barn foundation on the north. Little additional data about the homestead were gathered, although Mr. Lins did state that its legality was in question. The Lins homestead was established in 1886 and clearing of fields began then and continued into the 1930's.

Economy

The major economic focus of the Archaic components at the Lins Site was hunting, with emphasis on the taking of modern bison. Fifteen bones from one individual were found in a square on the north side of the river, and single bison bones occurred in two squares on the south. The high frequency of bison among the economic fauna constitutes additional evidence for assigning the site to the Larter Focus. At the Larter site itself, bison accounted for 95.6% of the mammalian fauna (MacNeish 1958:38). Syms (1970:135) concluded that the people of his expanded McKean Complex in Manitoba, which includes Larter, exploited two environmental zones, woodlands and prairies. At the Cemetery Point Site the fauna was composed of woodland species, while at the United Church Site bison predominated.

At the Itasca Bison Kill Site, Shay (1971:1) found that Bison occidentalis was the sole mammalian economic fauna. While his dates are too early for direct comparison to the Lins Site, they can be used in support of a hypothesis regarding the origins of the Oxbow-

Larter, side-notched projectile point complex. Wormington and Forbis (1965:190) adopt Mayer-Oakes' suggestion "that the Oxbow Complex is derived from some as yet unidentified Archaic culture of the prairie-woodland border area." The side-notched points from Itasca, with a time depth of 7000 to 8000 years, may prove to be representative of that Archaic base culture.

The economy of the Middle Woodland and hypothetical Late Woodland components of the Lins Site is less clear. It is possible, however, that the Laurel ceramics represent a bison-hunting camp and Johnson (1962:165) indicates that Blackduck peoples camped in the Red River Valley while hunting bison. That the Lins Site lay along an established trail would suggest the possibility of small, over-night camps, with some exploitation of local food sources.

Summary

The major archeological remains at the Lins Site relate to campsites, primarily of the Archaic Period, Larter Focus. The estimated date of these camps is 3250 to 600 B.C. There is a strong possibility that the material collected from the surface on the north side of the river represents a large camp or one that was used frequently but the excavated materials indicate only small camps of very short-term occupancy. The primary economic focus of the inhabitants was upon the taking of bison. Later use of the site, during the Middle and, possibly, Late Woodland periods may have been related either to bison-hunting trips by peoples whose base settlements were located in the woodlands zone to the east or to the use of a major trail which followed the Roseau River.

Recommendations

Excavations within the proposed construction zone at the Lins Site revealed the presence of four small campsites, three Archaic and one Middle Woodland, with very little cultural material, and a historic component which post-dates the original homesteading of the site. The sampling procedure was sufficient to preclude the existence of a major cultural concentration and to provide adequate data for interpretation of the material recovered. No further archaeological work in the project area can be justified by the existing evidence and no modifications of the project design are proposed.

The Lins Site has produced a large surface collection of Archaic artifacts but their interpretive value is reduced seriously by the absence both of controlled provenience data and of excavated samples of comparable size and typology. The probability that the major portion of this collection derived from a ridge which has been obliterated by plowing suggests that further excavations would fail to produce the absent data. Excavations elsewhere on the site have not yielded significant information about the Archaic period in northern Minnesota. Therefore, the Lins Site should not be nominated to the National Register of Historic Places.

The 1973 and 1975 surveys of the Lins Site indicated, based primarily upon Mr. Lins' surface collection, that the site was of considerable potential significance. Such a conclusion, given the data then on hand, appears justified. That subsequent excavations would not produce substantial data could not have been predicted. Nevertheless, both survey reports (Good 1974, Johnson 1975) appear,

in hindsight, to have been overstated.

The survey dilemma in dealing with deeply buried materials is not easy to solve and is complicated further by doing fieldwork in agricultural areas in the summer. An effort by funding agencies and contract archaeologists to schedule surveys in the spring and fall would alleviate the problem somewhat. Considerable data could have been gleaned from the surface of the Lins Site had crops not been standing at the time of the fieldwork. Although funds were allocated to pay for crop damage from excavation in the construction area south of the river, the presence of standing crops prevented archaeological testing in the center of the known concentration of surface finds on the north bank in both 1975 and 1976. That the research designs of subsequent survey and excavation projects include provisions to minimize this problem is recommended most strongly.

TABLE I-A. Provenience and Descriptive Data: Faunal Specimens, South Side of River

Acc. No.	Provenience	No.	Mammal	Identified
761-1-3	Unit 1, 401-402E x 98-99S Level 3, 99.70-99.60	2		2 frags. of femur, Snowshoe Hare
761-2-2	Unit 2, 426-427E x 98-99S Level 2, 99.90-99.80	2	2	
761-2-3	Level 3, 99.80-99.70	1	1	
761-2-6	Level 6, 99.50-99.40	2	2	
761-4-1	Unit 4, 476-477E x 98-99S Level 1, 100.10-99.90	1		1 tibia, Cottontail Rabbit
761-4-3	Level 3, 99.70-99.50	53		53 bones, 2 individuals, frog (sp.)
761-6-4	Unit 6, 526-527E x 98-99S Level 4, 99.40-99.20	1		1 tarsal, Bison, modern
761-11-1	Unit 11, 651-652E x 98-99S Level 1, 100.19-99.90	1	1	
761-11-2	Level 2, 99.90-99.70	12	11	1 molar, Bison, modern
761-11-2A	99.75	13	13	
761-12-3	Unit 12, 668-669E x 73-74S Level 3, 99.60-99.40	1	1	
761-13-2	Unit 13, 676-677E x 98-99S Level 2, 99.90-99.70	3	3	
761-14-2	Unit 14, 701-702E x 98-99S Level 2, 99.90-99.70	1		1 maxillary frag., Plains Pocket Gopher
761-14-3	Level 3, 99.70-99.50	1	1	
761-14-4	Level 4, 99.50-99.30	2	2	
761-15-1	Unit 15, 726-727E x 98-99S	1	1	

<u>Acc. No.</u>	<u>Provenience</u>	<u>No.</u>	<u>Mammal</u>	<u>Identified</u>
	Level 1, 100.15-99.90			
761-15-2	Level 2, 99.90-99.70	3	3	
761-17-1	Unit 17, 776-777E x 98-99S	1	1	
	Level 1, 100.11-99.90			
761-18-1	Unit 18, 801-802E x 98-99S	1		1 molar, Whitetail Deer
	Level 1, 100.12-99.90			
761-20-3	Unit 20, 851-852E x 98-99S	2	2	
	Level 3, 99.60-99.40			
761-22-3	Unit 22, 901-902E x 98-99S	2	2	1 bone rodent-gnawed
	Level 3, 99.70-99.50			
761-24-3	Unit 24, 951-952E x 98-99S	1	1	
	Level 3, 99.70-99.50			
761-24-4	Level 4, 99.50-99.30	6	6	5 bone frags. are burned (sooted, not calcined)
761-24-5	Level 5, 99.30-99.10	3	3	
761-27-1	Unit 27, 1026-1027E x 98-99S	2	2	
	Level 1, 100.22-100.00			
761-27-3	Level 3, 99.80-99.60	1	1	
761-38-1	Unit 38, 376-377E x 98-99S	2	2	
	Level 1, 99.86-99.70			
761-38-2	Level 2, 99.70-99.50	8	8	
761-39-1	Unit 39, 351-352E x 98-99S	20	18	1 vertebra, Woodchuck; 1 unident. bird
	Level 1, 100.00-99.80			
761-39-2	Level 2, 99.80-99.60	9	5	4 unident. bird
761-39-3	Level 3, 99.60-99.40	3	3	

<u>Acc. No.</u>	<u>Provenience</u>	<u>No.</u>	<u>Mammal</u>	<u>Identified</u>
761-40-S	Unit 40, 326-327E x 98-99S	1	1	
	Surface, 100.06			
761-40-1	Level 1, 100.06-99.90	8	8	
761-40-2	Level 2, 99.90-99.70	2	2	

TABLE I-B. Provenience and Descriptive Data: Faunal Specimens, North Side of River

<u>Acc. No.</u>	<u>Provenience</u>	<u>No.</u>	<u>Mammal</u>	<u>Identified</u>
761-28-2	Unit 28, 549-550E x 75-76N	7	7	
	Level 2, 99.90-99.70			
761-28-3	Level 3, 99.70-99.50	1	1	
761-29-1	Unit 29, 549-550E x 80-81N	1	1	
	Level 1, 100.06-99.90			
761-29-2	Level 2, 99.90-99.70	6	6	
761-29-3	Level 3, 99.70-99.50	6	6	
761-30-2	Unit 30, 549-550E x 85-86N	21	21	
	Level 2, 99.80-99.60			
761-30-3	Level 3, 99.60-99.40	4	4	
761-31-1	Unit 31, 549-550E x 90-91N	2	1	1 scapula, Cottontail Rabbit
	Level 1, 100.03-99.80			
761-31-2	Level 2, 99.80-99.60	12	12	
761-31-2A	NW corner; 99.68-99.59	11	11	
761-31-3	Level 3, 99.60-99.40	1	1	
761-32-1	Unit 32, 547-548E x 75-76N	1	1	
	Level 1, 100.10-99.90			
761-33-2	Unit 33, 547-548E x 80-81N	5	5	
	Level 2, 99.80-99.60			
761-33-2A	547.90E x 80.35N; 99.77	1	1	
761-34-2	Unit 34, 545-546E x 75-76N	1	1	
	Level 2, 99.90-99.70			
761-34-3	Level 3, 99.70-99.50	1	1	cut and/or ground long-bone shaft
			1	frag., large mammal

<u>Acc. No.</u>	<u>Provenience</u>	<u>No.</u>	<u>Mammal</u>	<u>Identified</u>
761-35-2	Unit 35, 548-549E x 78-79N	1	1	
	Level 2, 99.90-99.70			
761-37-1	Unit 37, 545-546E x 78-79N	2		1 humerus, 1 scapula, Snowshoe Hare
	Level 1, 100.06-99.80			
	Level 2, 99.80-99.60	3	3	

TABLE I-C. PROVENIENCE AND DESCRIPTIVE DATA: ARTIFACTS

<u>Acc. No.</u>	<u>Provenience</u>	<u>Class</u>	<u>Description</u>
<u>Prehistoric - South Side of River</u>			
761-S-1-3	Surface, vic. Units 38-40	Ceramic	3 small body sherds, exterior smoothed; largest 2.0 x 1.9 cm.
761-S-4	Same		1 rim sherd, Laurel Oblique, subtype undragged stamp
761-39-1	Unit 39, 351-352E x 98-99S Level 1, 100.00-99.80		1 small body sherd, surface treatment indeterminate; 1.4 x 1.1 cm.
761-39-2	Unit 39, 351-352E x 98-99S Level 2, 99.80-99.60	Lithic	Projectile point, corner-notched, expanding stem; grandiorite gneiss; 3.7 x 2.0 x 0.9 cm.
761-41-1	Unit 41, 305-306E x 98-99S Level 1, 100.12-99.90		Flake, ? used (scraping and/or cutting); gray chert; 5.2 x 3.0 x 1.7 cm.
<u>Prehistoric - North Side of River</u>			
761-33-2	Unit 33, 547-548E x 80-81N Level 2, 99.80-99.60	Lithic	Prismatic blade, basal frag., slight retouch ventral surface, ? knife; white chert; 2.2 x 2.4 x 0.6 cm.
761-29-2	Unit 29, 549-550E x 80-81N Level 2, 99.90-99.70		Utilized flake/scrapper, ? retouch and use scars on end and both sides; gray chert, 1.9 x 1.7 x 0.4 cm.
<u>Historic - South Side of River</u>			
761-40-S	Unit 40, 326-327E x 98-99S Surface 100.06	Ceramic	Undecorated whiteware; very late 19th century or later; 2.3 x 2.3 x .3 cm.
761-40-S	Same		Stoneware crock sherd, salt glazed, coarse, brown interior slip; post 1880; 6.0 x 3.3 x 0.9 cm.
761-39-1	Unit 39, 351-352E x 98-99S Level 1, 100.00-99.80		3 pieces chinking mortar, unfired; largest 2.7 x 1.8 x 1.6 cm.
761-39-1	Same	Glass	Clear pressed glass, lid or base frag., raised lip; post 1900; 4.9 x 3.9 x 1.3 cm.
761-40-1	Unit 40, 326-327E x 98-99S Level 1, 100.06-99.90		Same, frag. of ? sugar-cream set, designed; post 1900; 4.3 x 2.6 x .6 cm.
761-27-2	Unit 27, 1026-1027E x 98-99S Level 2, 100.00-99.80		Window pane frag., very late 19th or 20th century; 0.7 x 0.4 x 0.2 cm.

<u>Acc. No.</u>	<u>Provenience</u>	<u>Class</u>	<u>Description</u>
761-40-S	Unit 40, 326-327E x 98-99S Surface, 100.06		Same; 2.2 x 2.0 x 0.2 cm.
761-40-1	Level 1, 100.06-99.90		Same, 4 frags; largest 3.1 x 1.5 x 0.2 cm.
761-39-1	Unit 39, 351-352E x 98-99S Level 1, 100.00-99.80	Metal	5 nails: 6d box, >6d common, 16-20d common, 20d common or box, 40-50d common; all wire nails
761-27-1	Unit 27, 1026-1027E x 98-99S Level 1, 100.22-100.00		Nail, 8d machine-cut square
761-27-2	Level 2, 100.00-99.80		Nail, 10d machine-cut square

Table II. Soil Data

Soil pH (Laboratory electrode analysis, readings +/- 0.1)

<u>Reading</u>	<u>Depth (in cm.)</u>	<u>Stratum</u>	<u>Location</u>
5.9	20-35 cm.	humic clay	Unit 18, north wall
6.5	14-23	humic clay	Unit 31, east wall
7.7	34-41	upper clay	Unit 31, east wall
8.0	49-59	lower clay	Unit 31, east wall
8.2	60-70	lower clay	Unit 5, north wall
8.3	130-150	lower clay	Unit 24, auger hole

Particle Size (modified Bouyoucos method)

<u>Stratum</u>	<u>% Clay</u>	<u>% Silt</u>	<u>% Sand</u>
upper clay (black)	70	16	14
lower clay (gray)	62	28	10

Table III. Distribution of Faunal Specimens by Depth

<u>Natural Stratigraphy</u>								
Grouping:	<u>Surface-Disturbed</u>		<u>Upper Clay</u>		<u>Upper-Lower</u>		<u>Lower</u>	
Stratum:	<u>Surface</u>	<u>Sod</u>	<u>Plow-Zone</u>	<u>Sod-Upper</u>	<u>Mostly Upper</u>	<u>(ca 50/50)</u>	<u>Mostly Lower</u>	<u>Lower</u>
Specimens:	1	2	31	10	17	20	33	44
Group Totals:		34		47			33	92
Group %:		16.5		22.8			16.0	44.7
								100.0
<u>Arbitrary Levels</u>								
Depth (cms.):	<u>0-20</u>	<u>20-40</u>	<u>40-60</u>	<u>60-80</u>	<u>80-100</u>	<u>Total</u>		
Specimens:	47	96	51	9	3			206
%:	22.8	46.6	24.8	4.4	1.5			100.1

•53 frog bones excluded

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Appendix A

Vertebrate Faunal Remains from the Lins Site (21-R0-7), Roseau County, Minnesota

.. by

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Archaeological excavations conducted by the University of Minnesota and Bemidji State University (Brew, 1976) at the Lins site (21-R0-7), Roseau County, Minnesota, yielded a total of 525 pieces of bone, of which 81 pieces, or 15.4 per cent, were identifiable to the generic or specific level. In addition, most bone fragments were identifiable to class on the basis of bone structure. A list of bones recovered from each excavation unit is given in Table 1. The frequency of identified and unidentified bones, by class, is presented in Table 2, and the frequency of identified species, the approximate number of individuals per species, and the amount of usable meat provided by each species are shown in Table 3.

The vertebrate remains in the Lins sample are only moderately well preserved. The bones tend to be friable, and most pieces are small, resulting from both cultural and natural fracturation (see below, pg.8). Furthermore, the bones show a moderate degree of chemical corrosion and physical abrasion, probably due to deposition under acid soil conditions and post-depositional solifluction or cryoturbation.

Table 1. Vertebrate Bones from Excavation Units at the Lins Site (21-110-7).

Cat. No.	Unidentified		Identified	Comments
	Mammal	Bird		
U. of Minn. Collection (uncataloged)	229	0	17	One right mandibular symphysis, 1 atlas, 1 axis, 10 thoracic vertebrae, 2 ribs of <u>Bison bison</u> . One right mandible of <u>Ursus</u> <u>americanus</u> (Black Bear). One left distal carpometacarpus of <u>Halimastur leucocephalus</u> (Bald Eagle).
761.1.3	0	0	2	Two fragments of single left distal femur of <u>Lepus americanus</u> (Snowshoe Hare).
761.2.2	2	0	0	
761.2.3	1	0	0	
761.2.6	2	0	0	
761.4.1	0	0	1	One right proximal tibia of immature <u>Cylivagus</u> <u>floridanus</u> (Cottontail Rabbit).
761.4.3	0	0	53	Two individuals of <u>Rana</u> sp. (Frog).
761.6.4	0	0	1	One right fibular tarsal of <u>Bison bison</u> .
761.11.1	1	0	0	
761.11.2	11	0	1	One permanent left 1/3 of <u>B. bison</u> .
761.11.3	13	0	0	
761.12.3	1	0	0	
761.13.2	3	0	0	
761.14.2	0	0	1	One maxillary fragment of <u>Geomys bursarius</u> (Plains Pocket Gopher).
761.14.3	1	0	0	
761.14.4	2	0	0	
761.15.1	1	0	0	
761.15.2	3	0	0	

Table 1. (Cont.)

Cat. No.	Unidentified		Unidentified Bird	Identified	Comments
	Human	Animal			
761.17.1	1		0	0	
761.18.1	0		0	1	One heavily worn <u>W</u> of <u>Odocoileus virginianus</u> (Whitetail Deer); probably in excess of 5 $\frac{1}{2}$ years of age.
761.20.3	2		0	0	
761.22.3	2		0	0	One bone rodent-grawed.
761.24.3	1		0	0	
761.24.4	6		0	0	
761.24.5	3		0	0	
761.27.1	2		0	0	
761.27.3	1		0	0	
761.28.2	7		0	0	
761.28.3	1		0	0	
761.29.1	1		0	0	
761.29.2	6		0	0	
761.29.3	6		0	0	
761.30.2	21		0	0	
761.30.3	4		0	0	
761.31.1	1		0	1	One left scapula of <u>Sylvilagus floridanus</u> .
761.31.2	12		0	0	
761.31.2A	11		0	0	
761.31.3	1		0	0	
761.32.1	1		0	0	
761.33.2	5		0	0	
761.33.2A	1		0	0	

Table 1. (Cont.)

Cat. No.	Unidentified		Identified	Comments
	Mammal	Bird		
761.34.2	1	0	0	One cut and/or ground fragment from long bone mid-shaft of large mammal.
761.34.3	1	0	0	
761.35.2	1	0	0	One right proximal humerus and one right scapula of <u>Lepus americanus</u> (snowshoe hare).
761.37.1	0	0	2	
761.37.2	3	0	0	
761.38.1	2	0	0	
761.38.2	5	0	0	One thoracic vertebra of <u>Manuota monax</u> (woodchuck).
761.39.1	18	1	1	
761.39.2	5	4	0	
761.39.3	3	0	0	
761.40.3	1	0	0	
761.40.1	3	0	0	
761.40.2	2	0	0	
537			13	

Table 2. Frequency of Identified and Unidentified Bones by Class

Class	Identified Bones	%	Unidentified Bones	%	Total	%
Mammal	27	5.14	439	83.62	466	88.76
Bird	1	0.19	5	0.95	6	1.14
Amphibian	<u>53</u> 81	<u>10.10</u> 15.73	<u>0</u> 444	<u>---</u> 87.57	<u>53</u> 525	<u>10.10</u> 100.00

Table 3. The Vertebrate Fauna of the Lins Site (21-20-7).

Scientific Name	Common Name	No. of Bones	Per Cent	Approximate Number of Individuals	Per Cent	Total Rounds Usable	Per Cent
<u>Ursus americanus</u>	Black Bear	1	1.23	1	9.09	210.0	19.50
<u>Canis mordax</u>	Woodchuck	1	1.23	1	9.09	5.6	0.52
<u>Canis burarius</u>	Flvins Pocket Gopher	1	1.23	1	9.09	-	-
<u>Lepus americanus</u>	Shoushoe Hare	4	4.94	1	9.09	2.1	0.20
<u>Sylvilagus floridanus</u>	Cottontail	2	2.47	2	18.18	4.2	0.39
<u>Odocoileus virginianus</u>	White-tail Deer	1	1.23	1	9.09	100.0	9.29
<u>Bison bison</u>	Bison	17	20.99	1	9.09	750.0	69.64
Total Mammal		27	31.32	8	72.72	1,071.9	99.54
<u>Haliaeetus leucos halus</u>	Bald Eagle	1	1.23	1	9.09	5.0	0.46
Total Bird		1	1.23	1	9.09	5.0	0.46
<u>Rana, sp.</u>	Frog	53	65.43	2	18.18	-	-
Total Amphibian		53	65.43	2	18.18	-	-
Grand Total		81	99.98	11	99.99	1,076.9	100.00

The very small size of the sample (N=525) precludes all but the most general statements regarding the behavior of the site's occupants or their ecological relationships. Moreover, there is little on which to base any meaningful interpretation of the environmental setting of the site beyond the fact that the faunal assemblage, as represented in the sample, approximates that which would be expected from a locality within the northern conifer-hardwood forest near the eastern margin of the great American Prairie. Perhaps the single most significant observation to be gleaned from the sample is that its size and diffuse distribution (19.7 bones per excavated cubic meter) indicate only very limited and probably transitory occupation of the site.

Seasonality

Meager though it may be, there is convincing evidence that at least part of the Lins occupations occurred during the summer months. Although most of the identified species would have been available throughout the year, the black bear, woodchuck, immature cottontail, and bald eagle were more likely to have been taken between late spring and early fall. Black bear is a semi-hibernator, while woodchuck hibernates from October until February or later. The young-of-the-year cottontail (approximately 3-4 months of age), if born in spring (March-May), must have been killed in late summer or early fall. Bald eagle, primarily a fish-eating species, is a regular resident of the northern conifer-hardwood forest, generally wintering only as far north as there are ice-free waters.

Evidence for human utilization of animal bones

Several important observations of human alteration of animal bones should be noted. Although no butchering or skinning cuts were observed on any bones in the Lins site assemblage, it is quite possible that lighter scores may

have been obliterated by corrosion of the bone surfaces. Human alteration of bones is indicated by four mammalian long-bone fragments which have broken surfaces characteristic of torsion fracture. This type of fracture occurs when bones are broken by twisting as is often done to facilitate removal of the bone marrow (Sadek-Kooros, 1972).

Bison remains recovered from one excavation unit (University of Minnesota Test Unit 4) included an articulated section of the thoracic vertebral column and articulated axis and atlas. It is possible that these and other bison remains from Test Unit 4 are from a single individual, and because of their association, each bone was meticulously examined for cuts or fractures indicative of butchering; none were observed.

A single cut and/or ground fragment from the long-bone mid-shaft of a large mammal was recovered from Unit 34, Level 3. This altered bone is from a larger piece, apparently not recovered, which may have been used as a tool. Microscopic examination of the ground edge shows striations oblique to the long axis of the bone, suggesting that the tool from which the fragment came may have served a scraping function.

Economic significance of species.

Using the methods of White (1953) and Cleland (1966), estimates of the quantity of usable meat provided by species were obtained. These data are shown in Table 3. Although the small size of the sample precludes any firm statement of the economic significance of any single species or of the assemblage as a whole, two observations are in order. Over 99 per cent of the usable meat was derived from mammals, while fishes and reptiles were absent from the sample. This pattern, if not substantially biased by sampling

error, is indicative of hunting as a major activity of the site's occupants. Furthermore, one could speculate that a hunting group taking large mammals would consist largely of males.

Of the species represented, bison, because of its great size, provided the bulk of meat derived from all animals killed. This single individual probably yielded over a quarter-ton of meat, enough to supply a group of 25 persons with adequate protein for a month or more.

Summary

The vertebrate faunal remains from the Lins site include over 500 pieces of bone, of which 81 pieces were identifiable. At least nine species are represented, primarily mammals. The small size of the sample and its diffuse distribution over the site imply limited occupation by a small hunting group. The presence of hibernating animals and bald eagle suggests that hunting activities were carried out between late Spring and early Fall. Of the species taken, bison appears to have been of greatest economic importance, providing almost 70 per cent of the total meat derived from all species.

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Appendix B: Project Personnel

- I. Paid Personnel:
Project-Field Director: Alan P. Brew, Associate Professor of Anthropology, Bemidji State University
Field-Laboratory Assistant: William J. Yourd, graduate student, Bemidji State University
Cataloguer, Typist, Cook: Linda B. Brew, senior, Bemidji State University
Zoologist: Dr. Orrin C. Shane, III, Associate Professor of Anthropology, Kent State University
- II. Students receiving academic credit:
Carvell, Robert A., North Dakota State University (200 hours)
Dale, Beth S., Lakewood Community College (172 hours)
Morse, Douglas C., Bemidji State University (200 hours)
Yocum, John C., Bemidji Senior High School (200 hours)
- III. Personnel paid through Region I CETA Summer Youth Program administered by Inter-County Community Council, Inc., Oklee, Minnesota:
Nelson, Dawn (79 hours); Nelson, Kandy (85 hours); Mekash, John (114 hours)
- IV. Volunteers:
Simondet, Sean, Bemidji, Minnesota (200 hours)
Courtwright, Floyd, Springfield, Illinois (28 hours)
- V. Technical Assistants (unpaid):
Douglas A. Birk, Minnesota Historical Society: identified historic artifacts
Edward Lofstrom, Minnesota Historical Society: identified historic artifacts
Elden Johnson, University of Minnesota: identified prehistoric ceramics

Appendix C: Personnel Resumés

I. Alan P. Brew, Project and Field Director

Address: Department of Anthropology, Bemidji State University,
Bemidji, Minnesota 56601

Born: Cambridge, Massachusetts, 1 September 1941

Education:

1960-65 Harvard College, A.B. cum laude in Anthropology

1965-69 Washington State University, admitted to PhD
candidacy 1968

Professional Employment:

1969-76 Assistant Professor and Chairman, Department of
Anthropology, Bemidji State University

1976- Associate Professor and Chairman

Professional Associations:

Council for Minnesota Archaeology, charter member

Society for American Archaeology

American Society for Conservation Archaeology

Archaeological Field Research:

1959-64 American Southwest (University of Colorado, National
Park Service, Museum of New Mexico)

1965 Snake River, Washington

1966 Ozette Site, Washington

1967 Ft. Tompkins, Sacketts Harbor, New York

1968-70 New Mexico (dissertation research)

1971-75 Director, Bemidji State University's Archaeological
Field School

Fellowships and Grants:

1965-66 Teaching Assistantship, Washington State University

1966-69 National Defense Education Act Fellowship

1968-69 National Science Foundation Doctoral Research Grant

Publications:

1973 Review, The Changing Patterns of Hopi Agriculture
by Maitland Bradfield. American Anthropologist 75,
2:461-462.

-- The Leech Lake Reservation; Archaeological Aspects of
the Headwaters Reservoirs. In Environmental Review
of the Headwaters of the Mississippi Reservoirs
Projects, pp. DX 1-5, DXI 1-42. Center for Environ-
mental Studies, Bemidji State College.

1976 (with Lynn Flinn and Christy G. Turner, II) Additional
evidence for cannibalism in the Southwest: the case
of LA4528. American Antiquity 41, 3:308-318.

II. Orrin C. Shane, III, Faunal Analysis

Address: Department of Sociology and Anthropology, Kent State
University, Kent, Ohio 44240

Born: Kalamazoo, Michigan, 17 February 1939

Education:

1961 Kalamazoo College, B.A. in Physics

1960-61 University of Michigan, College of Engineering

1962 University of Michigan, B.A. in Anthropology

1964 University of Michigan, M.A. in Anthropology
 1967 Case Institute of Technology, PhD in Anthropology
Professional Employment:
 1967 Assistant-Associate Professor, Kent State University
Professional Positions
 1970-76 Coordinator of Anthropology, Kent State University
 1975 Vice-President, Ohio Archaeological Council
 1976 Associate Editor, Toledo Area Aboriginal Research Club Bulletin
 1976 Production Editor, Mid-Continent Journal of Archaeology
Archaeological Research:
 1964-67 Ohio prehistory, research assistant for Olaf H. Prufer (N.S.F. projects)
 1967-74 Director, Kent State University's Archaeological Field School
 1974 Consultant and Project Supervisor, archaeological impact and salvage studies
Fellowships and Grants:
 1964-67 Graduate Assistantship, Case Institute of Technology
 1972 Kent Research Council, Faculty Academic Year Research Grant
 1974 Commonwealth Associates, Inc., survey grant
 1976-78 Ohio Department of Transportation, Erie-2 salvage contract
Publications (selected)
 1967 The Leimbach Site: An Early Woodland Village in Lorain County, Ohio. In Studies in Ohio Archaeology, O. H. Prufer and D. H. McKenzie, eds., pp. 98-120. Western Reserve University Press. Cleveland.
 -- The Mixer Site: A Multi-component Hunting Station in Erie County, Ohio. In Studies in Ohio Archaeology, O. H. Prufer and D. H. McKenzie, eds., pp. 121-186. Western Reserve University Press. Cleveland.
 -- The Leimbach Phase and Its Position in Eastern North American prehistory. University Microfilms, Ann Arbor.
 1970 Blain Village and the Fort Ancient Tradition in Ohio. 287 pp. Kent State University Press. (with O.H. Prufer)
 -- The Vertebrate Fauna: 1968 Season. In Blain Village and the Fort Ancient Tradition in Ohio. pp. 199-206. Kent State University Press. Kent.
 1972 The Eiden Site: Terminal Late Woodland on the South-Central Lake Erie Shore. Lorain County Metropolitan Park Board. 110 pp. Elyria. (with D. H. McKenzie, J. E. Blank, and J. L. Murphy).
 -- Vertebrate Remains from the Eiden Site. in The Eiden Site: Terminal Late Woodland on the South-Central Lake Erie Shore. McKenzie, D. H., et al. pp. 33-44.
 1974 Tuscarawas County's Kline Mound. Ohio Archaeologist, 24(3):4-8 (with E. W. Richards).
 1975 Ohio Radiocarbon Chronology. In Studies in Ohio Archaeology (revised edition), O. H. Prufer and D. H. McKenzie, eds., pp. 357-368. Kent State University Press. Kent.
 1976 A Preliminary Analysis of Vertebrate Faunal Remains From the Philo II Site, Muskingum County, Ohio. Pennsylvania Archaeologist, 46(3):1-6. (with M.B. Barber)

In Press The Portage-Sandusky-Vermilion River Region of Ohio.
In Late Prehistory of the Lake Erie Drainage Basin,
D. S. Brose, ed., Cleveland Museum of Natural History,
Scientific Publications. 30 pages.

In Preparation (Manuscripts)

Reports on the vertebrate faunal remains from the
Stanhope Cave, Raven Rocks Cave, Wise Rock Shelter,
and the White Rocks Shelter sites.

Palaeoecology of the Libben Site, Ottawa County, Ohio.

Healed Humeral Fracture in a Wild-Shot Black Crown
Night Heron (with C. Owen Lovejoy and K. G. Heiple).

Analysis of the Vertebrate Fauna from the Incinerator
Site (33my-57) and Implications for Fort Ancient
Settlement Patterning.

The Vertebrate Fauna from the Philo II Site, Muskingum
County, Ohio: Final Report.

III. William J. Yourd, Laboratory and Field Assistant

Address: Bemidji, Minnesota 56601

Born: Cresco, Iowa, 25 April 1952

Education:

1970-72 Bemidji State University

1972 St. Peters College, Oxford University

1972-75 Grinnel College, B.A. in Anthropology

1976-77 Bemidji State University, graduate courses

Professional Employment:

1973 Mississippi Headwaters Reservoir Project, field
assistant

1975 Lubbock Lake Site, Texas Tech University, crew chief

1976-77 Archaeological Impact Studies (minor), field assistant

Archaeological Field Research:

1973 Bemidji State University, Archaeological Field School,
student excavator

1974 Texas Tech University, Lubbock Lake Site, student
excavator



Plate I. Lins Site, South side. Looking north toward Units 1 - 5 along tree line.



Plate II. Lins Site, South side. Looking west along baseline through oats field. Unit 24 in foreground.



Plate III. Lins Site, North side. Looking south across excavation area, Units 28 - 37, University of Minnesota Units 2 and 4.



Plate IV. Lins Site. Profile of North wall, Unit 5, 501 - 502 E, 98 S. Upper and lower clay, streaking and mottling in latter.



Plate V. Lins Site. Bones lying at contact between lower and upper clays in northwest corner of Unit 31, North side.



Plate VI. Lins Site, 1976 artifacts: lithics, prehistoric ceramics, nails, historic ceramics and mortar, pressed and window-pane glass. Scale, 10 cm.



Plate VII. Lins collection. Parkdale Eared points. Scale, 10 cm.

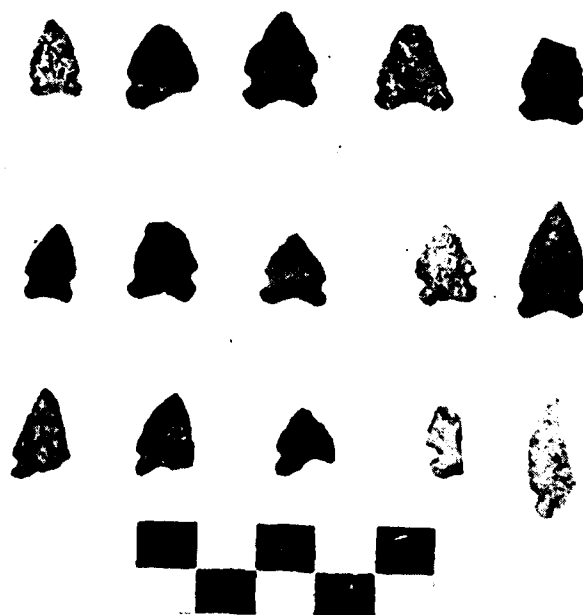


Plate VIII. Lins collection. Parkdale Eared points. Scale, 10 cm.



Plate IX. Lins collection. Anderson Corner-notched points. Scale, 10 cm.

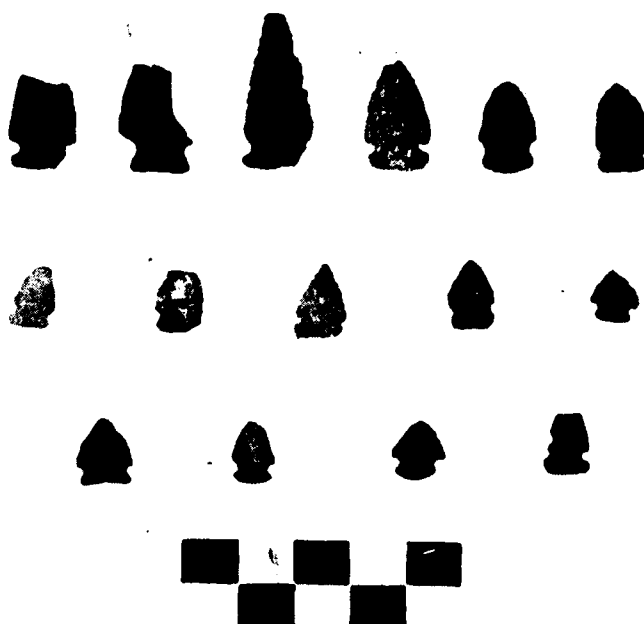


Plate X. Lins collection. Corner- and side-notched points. Scale, 10 cm.

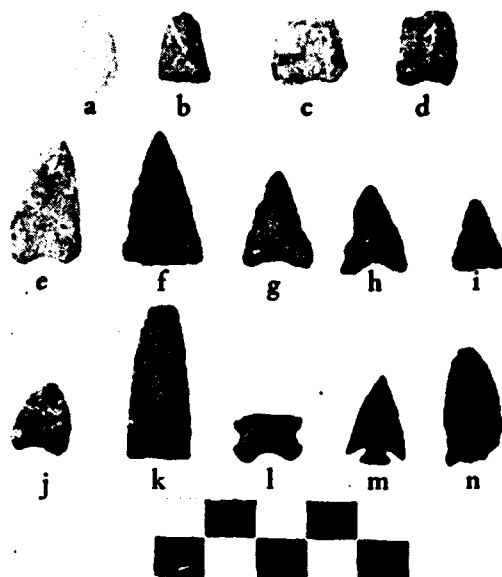


Plate XI. Lins collection. Miscellaneous points: k, possible Plano point; 1, Parkdale Eared base. Scale, 10 cm.



Plate XII. Lins collection. Large ovoid and triangular bifaces. Scale, 10 cm.

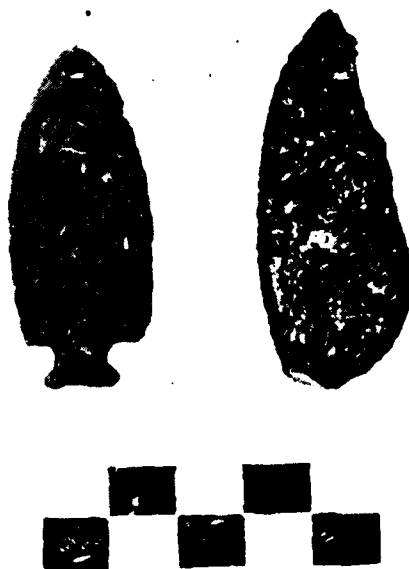
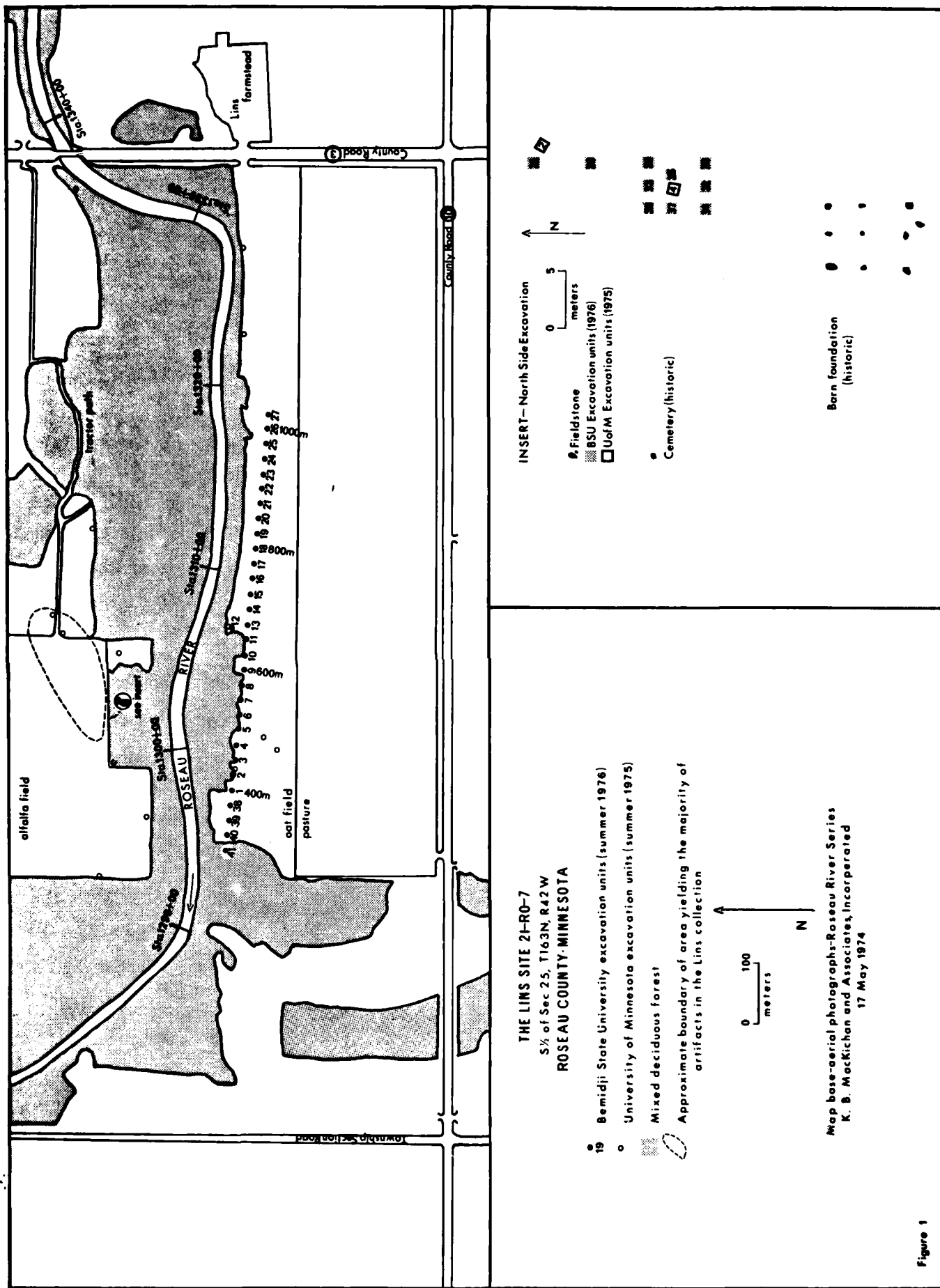
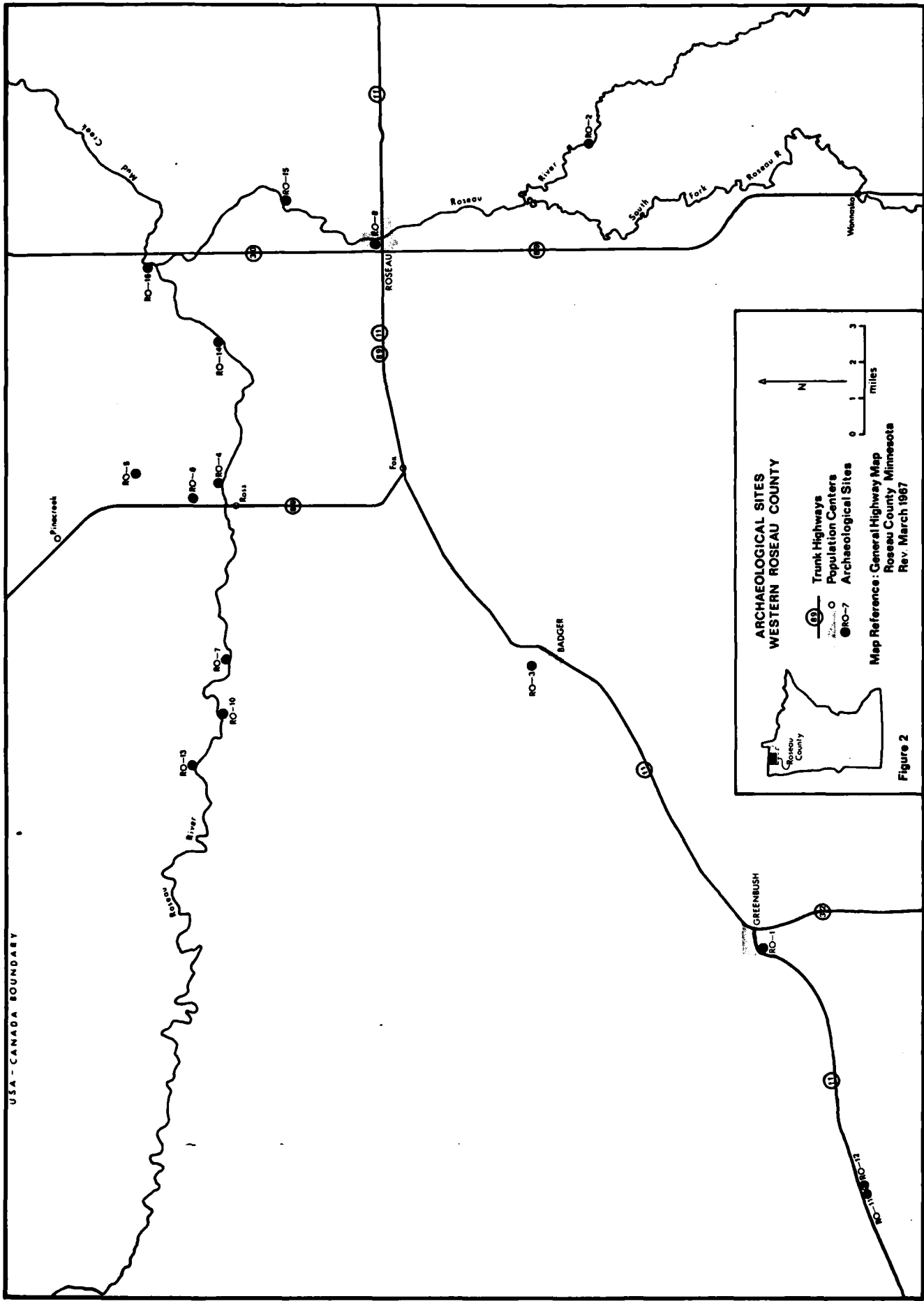


Plate XIII. Lins collection. Large bifaces, only artifacts found by Lins on south side of river. Scale, 10 cm.





GENERALIZED SOIL PROFILE
LINS SITE 21-RO-7

cm below surface

0

Sod

Plow zone

10

20

Upper clay unit (humified ponded alluvium)
Black 7.5 YR 2/0 (moist)

30

Contact clear to gradual, zone of admixture
humic streaking and mottling

40

50

60

70

Lower clay unit (glacial-lacustrine)
Gray to dark gray
5 Y4/1 to 5 Y5/1 (moist)

80

90

Figure 3

END

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